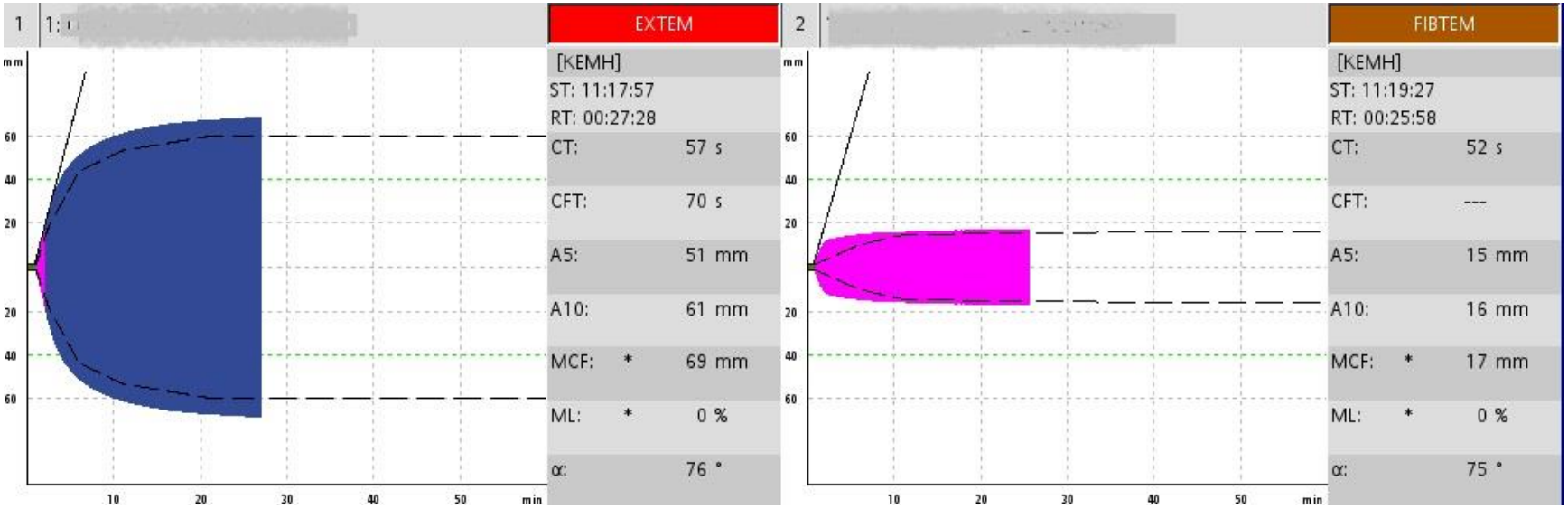
Massive blood loss during placenta percreta surgery case 2

Disclaimer / Pre-amble

- These cases have been de-identified to protect the identity of the patient and the treating teams.
- These are all real cases and real ROTEMs. The individuals involved in these difficult cases have agreed to anonymously share these with us – thank you for your generosity.
- Successful management of the bleeding patient involves much more than just administration of blood products.
- The primary aim of these cases is to teach the use ROTEM guided blood product therapy. We have deliberately not included a lot of detail about some of the other aspects of management which might detract from this focus.

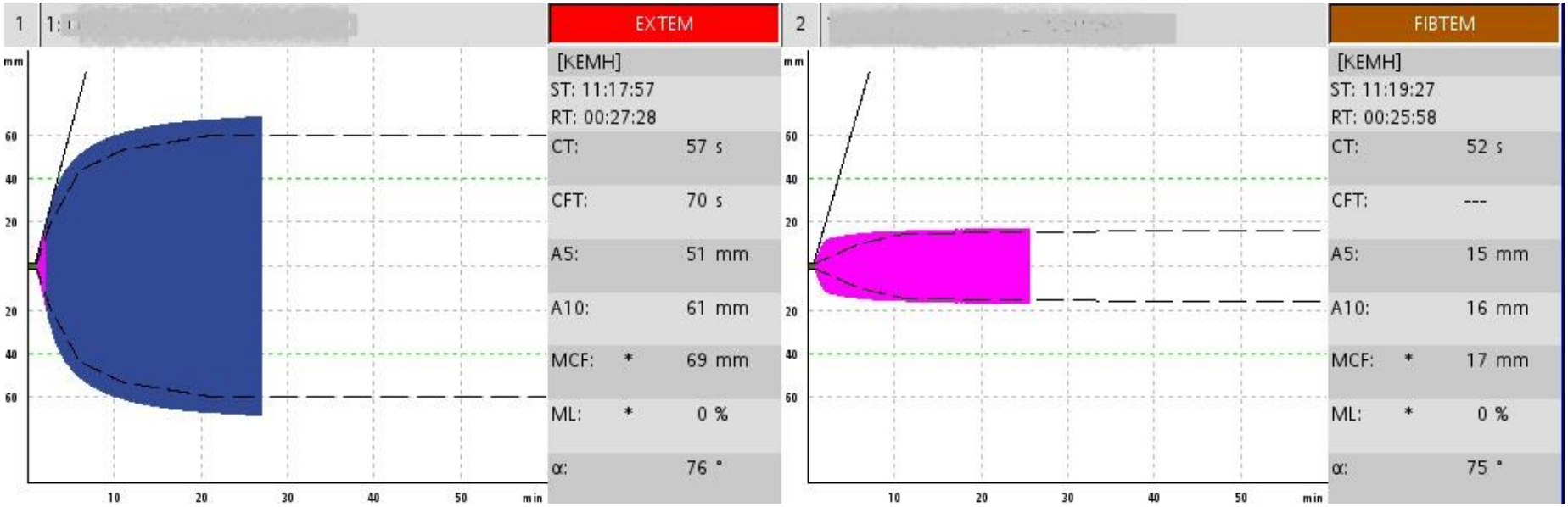
Case 2 (from 2015)

- A woman with known placenta percreta undergoes planned elective caesarean hysterectomy by multidisciplinary surgical team.
- Despite attempts to avoid it, major torrential blood loss occurs unexpectedly and cardiovascular collapse occurs (systolic BP < 60, despite aortic compression / rapid red cell / fluid infusion /noradrenaline infusion).
- As part of the resuscitation this ROTEM is performed.



- What treatments / blood products will you give (follow the KEMH ROTEM algorithm)

Case 2 – ROTEM 1

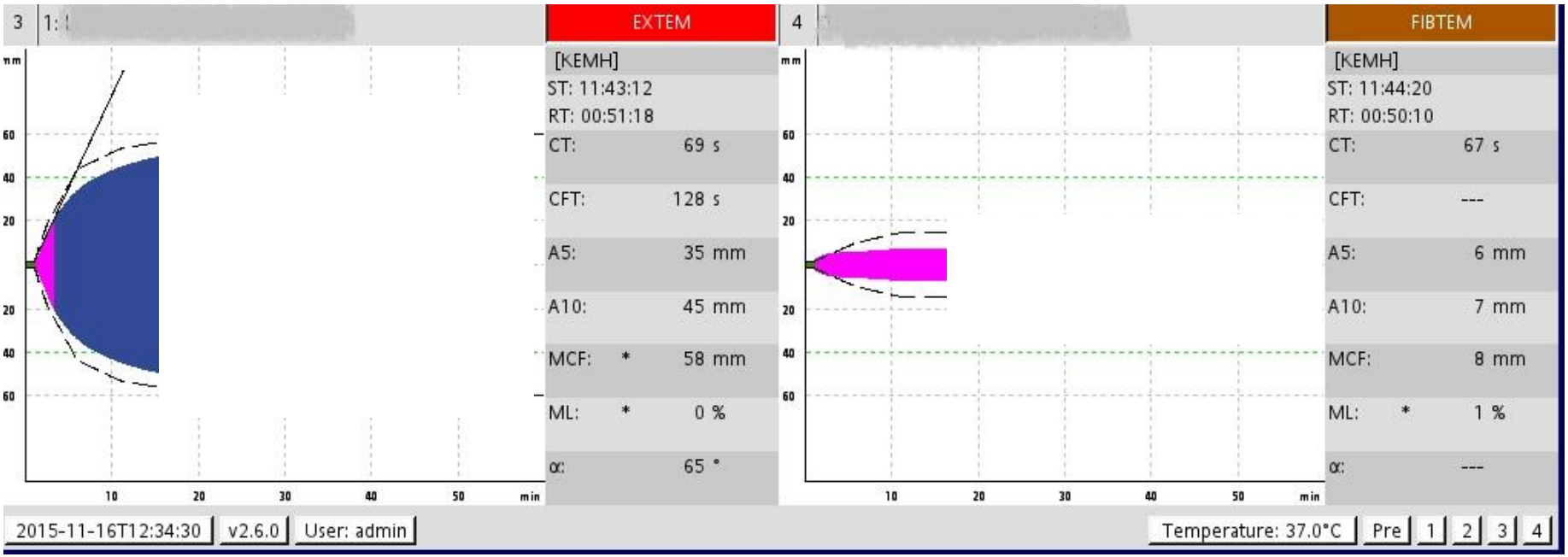


Applying the algorithm:

- Fibrinolysis: Extem A5 >35mm and ML = 0%, No obvious fibrinolysis
- Fibrinogen: Fibtem A5 > 12mm
- Platelets: Extem A5 > 35mm – no indication of thrombocytopenia
- Factors: Extem CT = 57s – no need for clotting factors

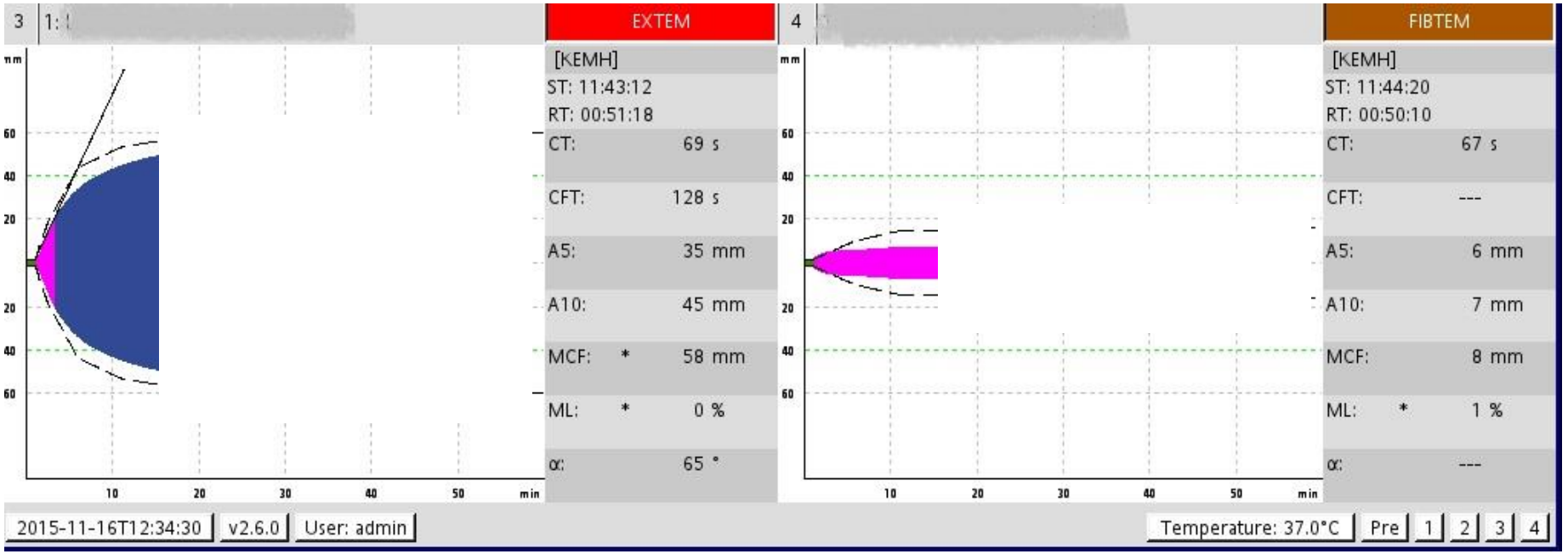
At this stage there are no abnormalities which need correcting however in a situation of torrential blood loss you should anticipate a rapid deterioration in coagulation status and consider pre-emptively treating this.

Case 2 – ROTEM 2



- As part of the resuscitation the team give tranexamic acid 1g, 5 units of red cells and pre-emptively 16units of cryoprecipitate.
- The bleeding continues and another ROTEM is taken.
- What treatments / blood products will you now give (follow the KEMH ROTEM algorithm)?

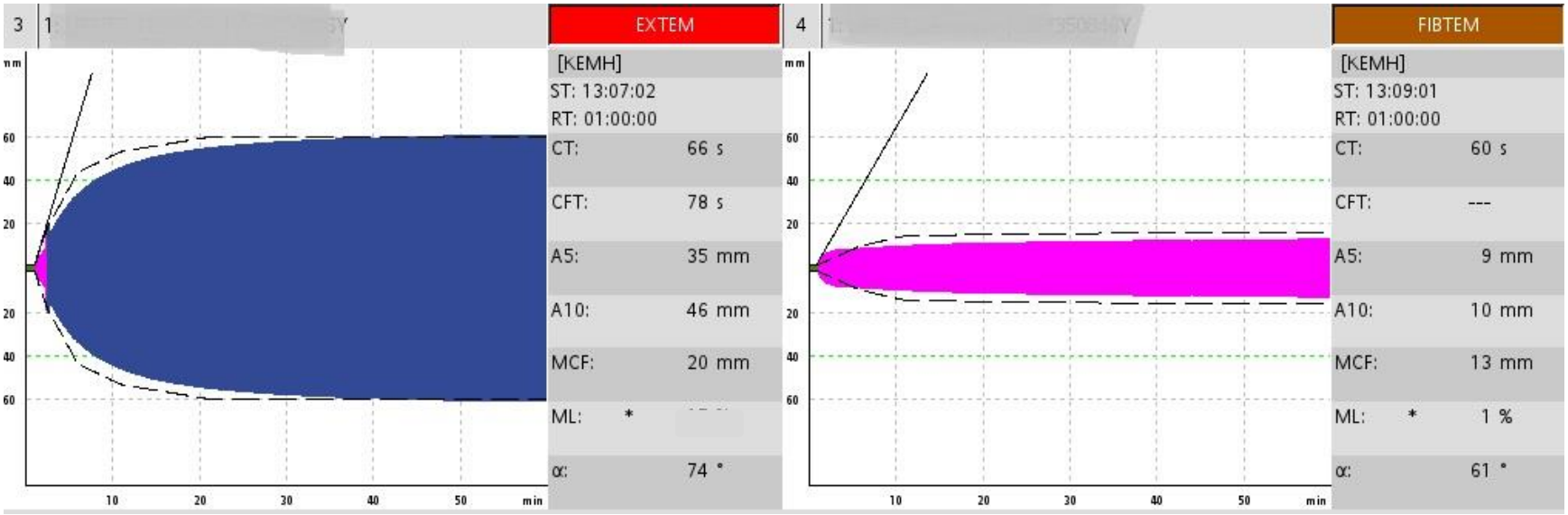
Case 2 – ROTEM 2



Applying the algorithm:

- Fibrinolysis: No evidence of fibrinolysis. (we know she was given TXA 1g)
- Fibrinogen: Fibtem A5 is 6mm – critically low now despite the 16units cryo, to get to a target of 12mm we should give her 4g fib conc or 20 units of cryo.
- Platelets: Extem A5 = 35mm – no evidence of need for platelets
- Factors: Extem CT = 69s – no evidence of need for clotting factors

Case 2 – ROTEM 3



- She does receive 4g of fibrinogen concentrate and salvaged red cells, her fibtem is still below the target of 12mm.
- The rate of blood loss settles and the surgery ends
- Still requiring vasopressor support
- Transferred to ICU and given another 1g of fibrinogen concentrate and 2 units of FFP – based only on a mildly prolonged APTT – although EXTEM CT is normal.
- No ROTEM was taken after the above treatments

Total Actual Blood Products:

- 5 units red cells, 1600ml salvaged red cells (7-8unit equiv)
- 16units cryo, 5g Fibrinogen conc
- 2 units FFP

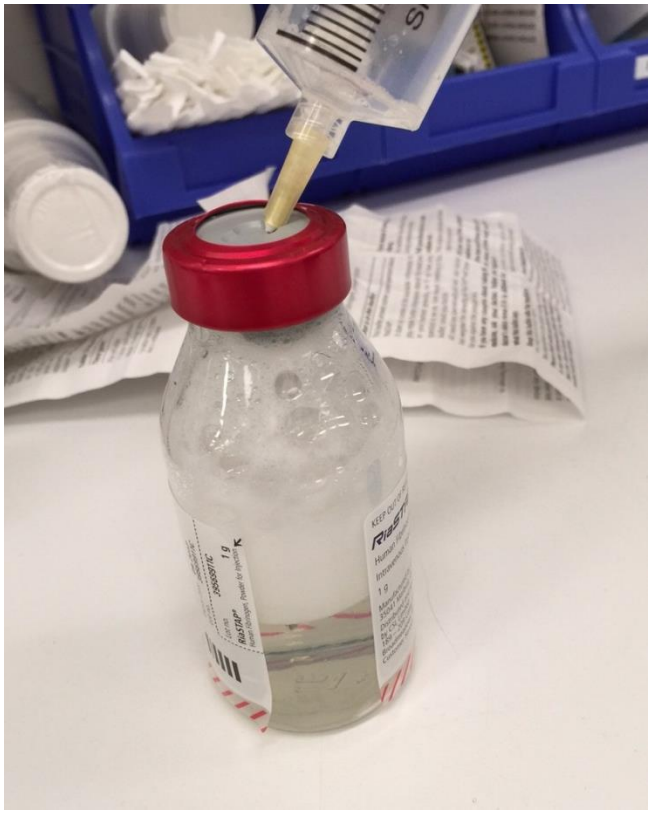
Approx Equivalent Traditional Blood Products:

- 12-13 units red cells
- 41units cryo
- 2 units FFP

Tips for Use - Fibrinogen Concentrate

PREPARATION

- 1 ampoule contains 1g
- 50ml sterile water
- 50ml syringe
- DO NOT SHAKE
- Swirl gently
- Reconstitute all ampoules at the same time
- Use warm water if possible
- Takes 5-10minutes
- Administer via syringe driver over 3 min (1000ml/hr)



Here is the link to the 4min KEMH instructional video on how to prepare and administer fibrinogen concentrate

https://www.dropbox.com/s/0ojknvpjcp7tpo5/Preparation%20and%20Administration%20of%20fibrinogen%20concentrate.mp4?dl=0

Points to Ponder

- How long does it take to get cryoprecipitate in your hospital?
- Even in tertiary hospitals with onsite blood bank - during exceptionally rapid blood loss fibrinogen concentrate can more rapidly restore haemostatic function.
- Strongly consider fibrinogen concentrate in a hospital without a blood bank or if you need to call in a scientist after hours?

Quick Algorithm Memory Tests

- This is a bit like memorising your times table as a child, there are a few key numbers which are probably good to commit to memory. See if you can remember these easily without having to look at the algorithm..

KEY VALUES:

- What is the Fibtem A5 trigger? Target?

- Currently at KEMH below what Fibtem A5 are we authorised to use fibrinogen concentrate?

- What is the Extem A5 trigger for platelets (with normal fibtem and with low fibtem?)